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RECOMMENDED METHOD FOR THE USE OF FREEZING STORAGES
TO PRESERVE THE PEACH HARVEST

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Recent work at the Western Regional Research Laboratory has shown the feasibility of using freezing storage to hold, over extended periods, peaches intended for canning or other manufacturing purposes. Industrial application of the method might very well assure a simplification of operations during the harvesting season, and a desirable orderly leveling out of manufacturing operations throughout the year.

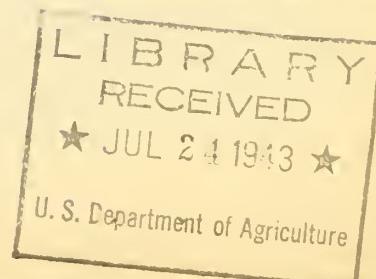
The first step is the freezing of peaches in the field boxes or other containers. Subsequently they are transferred to moisture-vapor-proof containers and stored at low temperatures. The peaches can be defrosted in boiling water, in such a way that darkening is prevented. The frozen peaches can be lyed or cold peeled without previous thawing.

In the experimental tests Rio Oso Gem peaches that had been stored at -10°F . for one year were used. Some of the samples had been held in an unbroken form; the others had been individually wrapped in various kinds of paper and plastic film. Heavily waxed paper and plastic had prevented significant loss of moisture, and the peaches wrapped in these materials retained their original appearance, aroma, and flavor. Where desiccation occurred it was accompanied by darkening and the development of a stale odor.

It is well known that during the defrosting of whole frozen peaches discoloration due to the oxidation of tannins occurs before the peach is loosened. Since the natural enzymes concerned in this darkening are rather easily destroyed by heat, the expedient of immersing the frozen peaches in boiling water was tried. It was found that boiling at a temperature of 100°F . or over for 15 to 20 minutes defrosted the peaches and heated them enough throughout so that darkening would not occur. Since the peaches were to be used for further manufacture, the effects of light cooking were in no way objectionable.

A batch of peach halves treated as above was passed through the coarse sieve of a juice extractor and pulper. The resulting coarse puree was made into a 45-55 jam of satisfactory color.

It was found that whole frozen peaches, if treated with hot 2-5 percent lime solution or 2 percent hydrochloric acid solution, peeled easily. They could then be defrosted in the manner already described and used for preserves, or even canning with fine results.



RECOMMENDATIONS

Freezing Storage

Harvest: Peaches or similar fruit can be harvested in the usual manner.

Freezing: The fruit in the field picking boxes is placed in a low-temperature room under conditions that will cause it to be frozen solid within a few hours at most. It can be stored in the boxes in a checkered stack at 0°F. or lower until it can be transferred to moisture-tight containers, provided it is not left sufficiently long to show evidence of drying.

Packaging: Any tight container that will prevent drying is suitable. Some that might be suggested are laminated moisture-vapor-proof paper bags sufficiently strong to resist breakage, boxes or barrels with moisture-vapor-proof liners or tight plywood bins--in fact anything that will prevent the escape of the moisture in the fruit to collect on the refrigeration coils.

Best results can probably be obtained with heat-sealed, tear-resistant liners inside barrels or cubic-foot pasteboard boxes. Inexpensive barrels can be used since they need not be waterproof. Some of the suitable materials for liners are as follows:

1. No. 450 moisture-vapor-proof, water-proof, heat-sealing cellophane laminated to a 45 lb. opaque laminated glassine. (Good moisture proofness--good tear strength.)
2. Moisture-vapor-proof, heat-sealing cellophane laminated to bleached sulphite paper. (Good moisture proofness--good tear strength.)
3. Heat-sealing laminated glassine. (Good moisture proofness--fair tear strength.)
4. Double waxed parchment. (Fair moisture proofness--fair tear strength.)
5. Laminated cellophane (moisture-vapor-proof, water-proof, heat-sealing). (Good moisture proofness--good tear strength.)
6. No. 300 moisture-vapor-proof, water-proof, heat-sealing cellophane laminated to 50 lb. kraft paper. (Good moisture-vapor proofness--good tear strength.)
7. Double waxed unbleached sulphite paper. (Good moisture proofness--fair tear strength.)

It is important that the containers do not impart an odor to the fruit. Some of the tars or other means of moisture-proofing certain paper products may

~~enzymes~~ remain soluble even at low temperature to effect an odor and flavor change.

Storage: Fruit thus solidly frozen and packaged can be stacked in a cold-storage warehouse and safely held for at least a year at zero or below. Of course, when frozen material is stored in large stacks it should be spaced away from walls and floors.

Treatment Following Freezing Storage

If the fruit is to be used for piee, preserves, or for other purposes where a puree is not suitable, it can be readily peeled. This can be easily and quickly done with either lye or hydrochloric acid while the fruit is still solidly frozen.

Lye peeling: A 2-percent lye solution near the boiling point will remove the peeling from frozen peaches immersed in the solution for 75 to 90 seconds.

Acid peeling: This method has some advantages when facilities are available. Obviously metal containers can not be used for the acid as in the case of lye. A 2-percent solution is easily made by dilution in the ratio of two gallons of concentrated (35 percent) commercial hydrochloric acid with 33 gallons of water to make 35 gallons. A small amount of a wetting agent such as sodium alkylbenzenesulfonate (Nacconal N.R.) should be added to the acid. The scalding acid will remove the peeling from frozen peaches in half the time required for the lye--that is, from 30 to 45 seconds.

Washing: The peaches must be thoroughly washed in fresh, clean water before they are placed in boiling water or a live steam bath. The peeling, washing, and transfer to the blanching bath should be continuous and rapid so as to prevent any color change.

Blanch: The time required in the scalding water or live steam to defrost the fruit will vary with size and kind. This can easily be determined for each lot. The important consideration to keep in mind is that the fruit must be quickly and thoroughly heated. If it is heated longer than necessary for thorough penetration it may become excessively soft and lose weight.

Pitting: The peaches are very easily split and pitted mechanically as soon as they are removed from the blancher, or by hand as soon as they are cool enough to handle.

Utility: The peeled and pitted fruit is now ready for use in the preparation of any product that requires heating in the process.

Preparation of puree for jam: The peaches need not be peeled if they are to be reduced to a puree for use in jam. The frozen fruit is placed directly into the boiling water or steam blanch until thoroughly heated; it is then pitted and run through a pulper. A mechanical pitter may be used. If the puree is to be used immediately almost any kind of pulping or pureeing device may be used; however, if it is to be refrozen, it is not advisable to use equipment that lets air into the puree.

